Computer algorithm for the static analysis of circular helicoidal bars

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Abstract: This paper presents a computer-based numerical procedure which has been devised for the static analysis of circular helicoidal bars. Based on the concepts of transfer functions, the equations of static equilibrium and deformations are formulated for a representative helicoid. These equations are then used to determine the state of stress and/or deformation at any section along the bar. In addition to its usefulness for the analysis of freely standing helicoids, and due to its systematic development, the method is particularly useful to account for the interaction between helicoidal bars and any other aggregate of structural members.